

Locating Thermally Sensitive Areas in Dane County

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Thermally sensitive areas

- Definition: Areas of land that drain to a cold water stream
- The Erosion Control and Stormwater Management Ordinance has additional requirements for development projects in these areas in order to protect cold water streams

How does urbanization threaten the health of cold water stream ecosystems?

- Increased sediment loads to stream during construction
- Nonpoint source pollution (oil and grease, fertilizers, etc in runoff)
- Increased stream temperature fluctuations

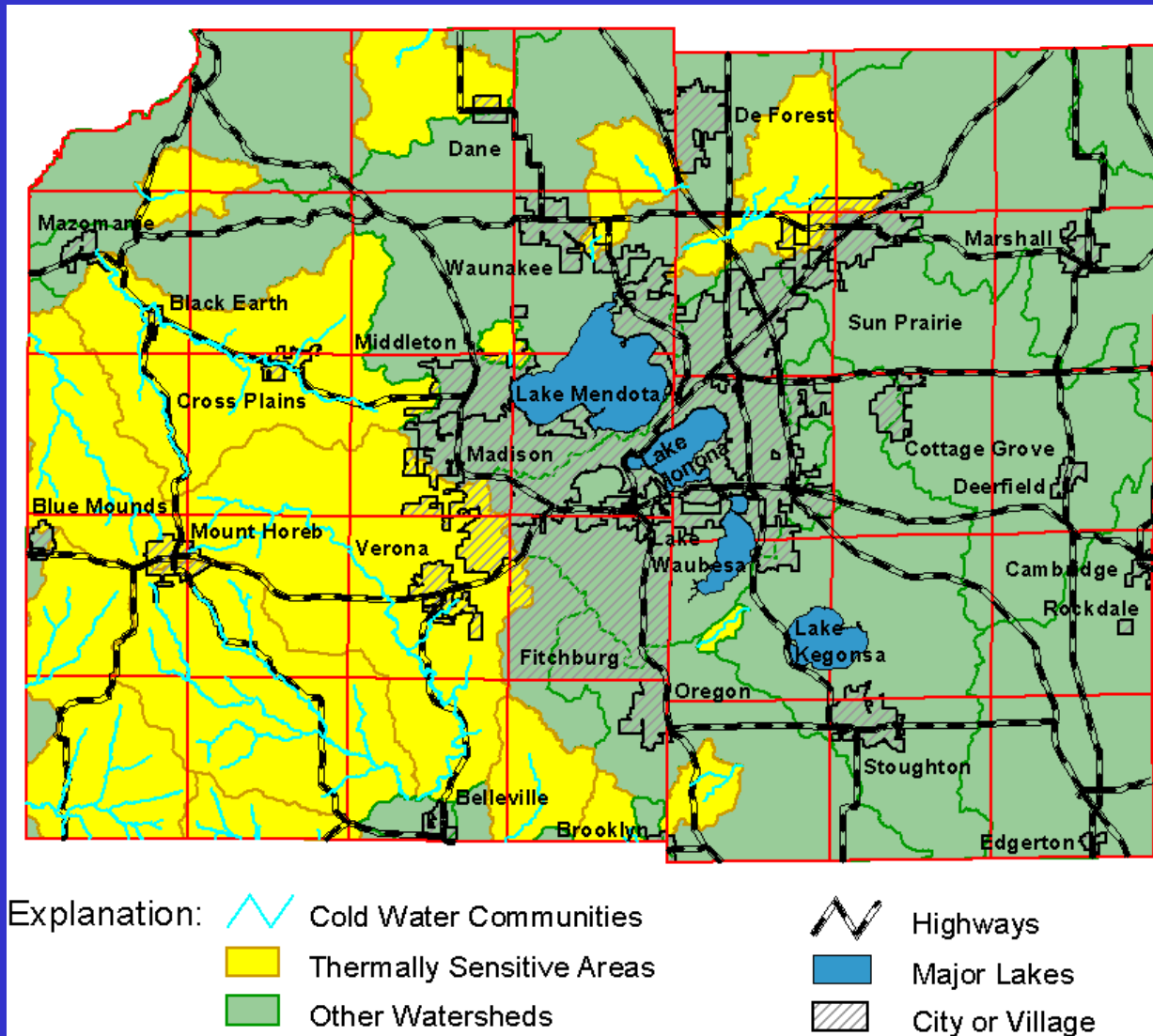
Causes of increase in stream temperature fluctuations

- Loss of riparian vegetation
- Changes in channel morphology
- Reduction in groundwater flow to streams
- Heated runoff from impervious surfaces

Thermal control section of ordinance

- Important reason why this is a progressive stormwater ordinance
- Applies to development projects on land that drains to a Cold Water Community
- These projects must use management practices to reduce their thermal impact

Regulatory boundaries of thermally sensitive areas



Goal:

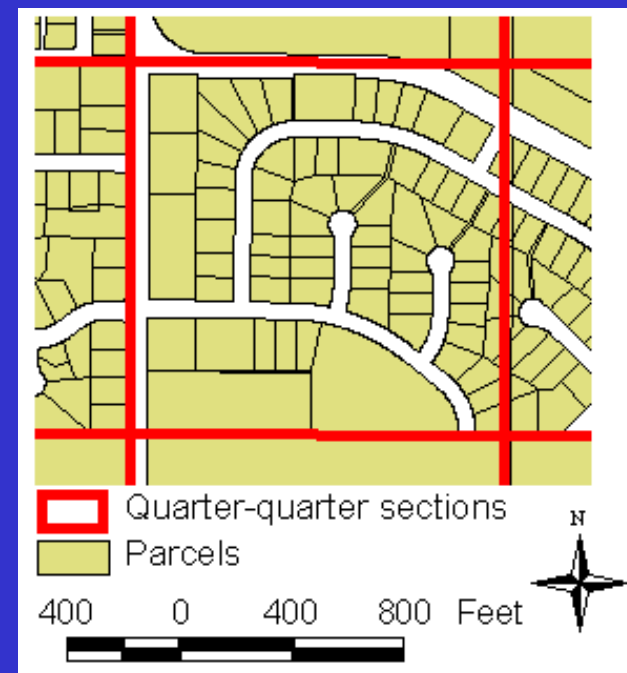
To allow people to quickly
determine if a given area of land is
within the watershed of a cold
water stream

Background: Public Land Survey System

| | | | | | | |
|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| T09N, R06E | T09N, R07E | T09N, R08E | T09N, R09E | T09N, R10E | T09N, R11E | T09N, R12E |
| T08N, R06E | T08N, R07E | T08N, R08E | T08N, R09E | T08N, R10E | T08N, R11E | T08N, R12E |
| T07N, R06E | T07N, R07E | T07N, R08E | T07N, R09E | T07N, R10E | T07N, R11E | T07N, R12E |
| T06N, R06E | T06N, R07E | T06N, R08E | T06N, R09E | T06N, R10E | T06N, R11E | T06N, R12E |
| T05N, R06E | T05N, R07E | T05N, R08E | T05N, R09E | T05N, R10E | T05N, R11E | T05N, R12E |

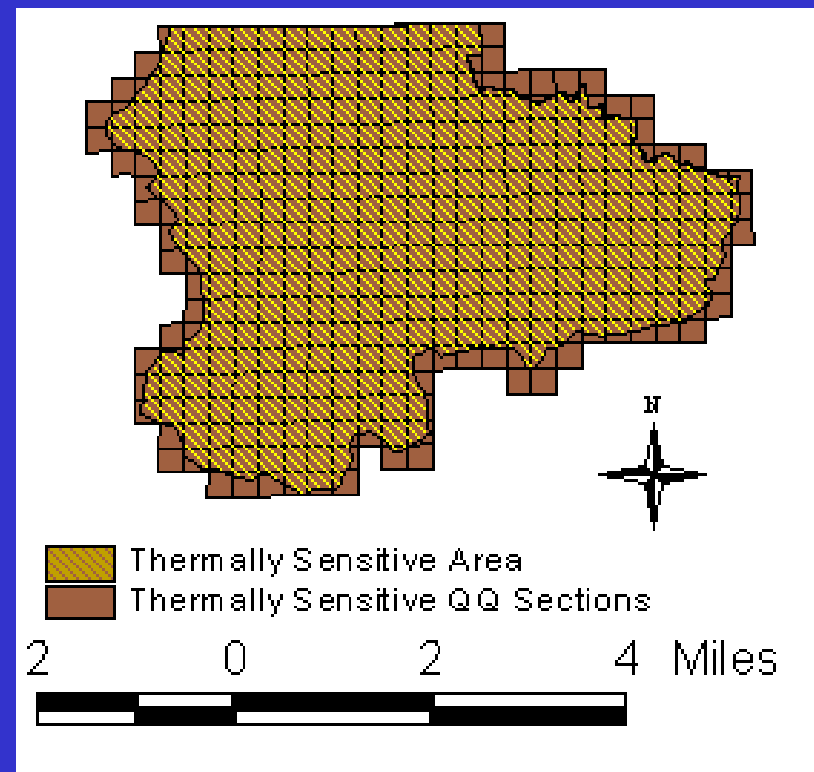
| | | | | | |
|----|----|----|----|----|----|
| 6 | 5 | 4 | 3 | 2 | 1 |
| 7 | 8 | 9 | 10 | 11 | 12 |
| 18 | 17 | 16 | 15 | 14 | 13 |
| 19 | 20 | 21 | 22 | 23 | 24 |
| 30 | 29 | 28 | 27 | 26 | 25 |
| 31 | 32 | 33 | 34 | 35 | 36 |

| | | | |
|----|----|----|----|
| NW | NE | NW | NE |
| SW | SE | SW | SE |
| NW | NE | NW | NE |
| SW | SE | SW | SE |



Level of detail

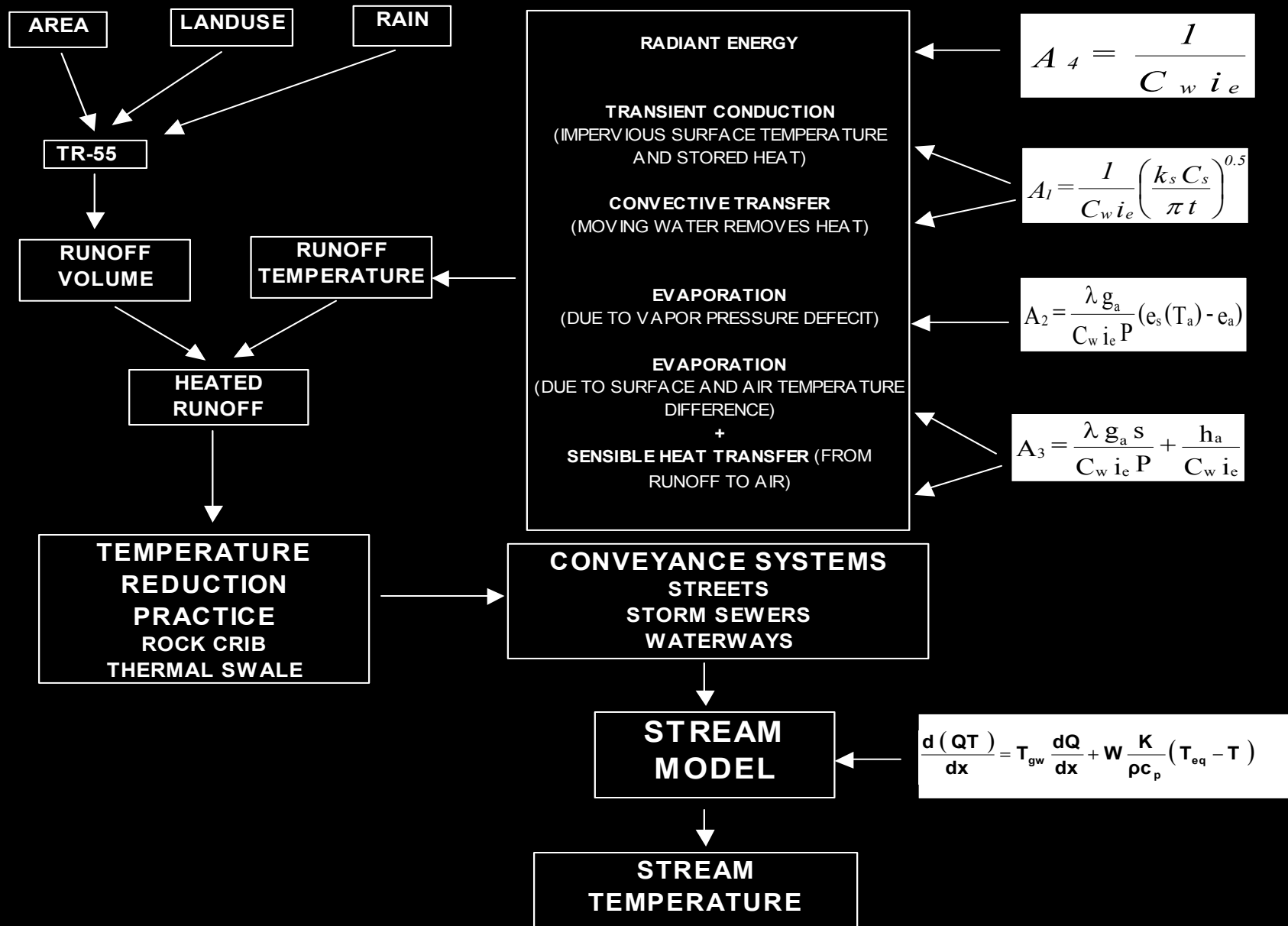
- Parcel Level is most detail possible, but parcel boundaries are constantly changing
- Next level up is quarter-quarter section
- Locator



Conclusions about Locator

- Relatively accessible to anyone with internet access
- Appropriate for a simple spatial query
- For more complex web-based spatial analysis, web-based GIS would probably be more appropriate

THERMAL URBAN RUNOFF MODEL (TURM)



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Questions???